

UTILITY APPLICATION

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FOR

UNITED STATES PATENT

ON

**BOOKMARK WITH INTEGRATED ELECTRONIC TIMER
AND METHOD THEREFOR**

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**Bookmark with Integrated Electronic Timer
and Method Therefor**

Field of the Invention

[00001] The present invention relates in general to bookmarks and, more particularly, to a bookmark with an integrated electronic timer.

Background of the Invention

[00002] Reading is a useful activity for education, self-improvement, relaxation, and pleasure. People read fiction and non-fiction books on topics such as science, mathematics, language arts, health, history, technology, current events, finance, marketing, management, philosophy, music, arts, adventure, comedy, drama, romance, and personal hobbies. Students read a variety of books as an integral part of their studies and homework assignments. Some books impart directed useful knowledge and skills; other books are read just to improve reading skills. Business people read to improve personal skills, learn new ideas, and expand their knowledge base. Most if not all people read for enjoyment and leisure.

[00003] Reading is typically done in short to medium length sessions with duration of fifteen minutes to one hour or so. Most people cannot dedicate long, continuous blocks of time to read an entire book or finish an assignment. A person typically reads for a while, puts the book down to do something else, and then picks it up again to continue reading. The delay between reading sessions may be few minutes to several days. In order to be able to quickly and reliably turn to the correct page, most people mark the ending point of each reading

session. Bookmarks are well-known and commonly used to mark one's place in a book. The bookmark can be as simple as a paper card, or more fanciful ribbon or decorative thin plastic or metal plate.

[00004] Simple bookmarks provide little or no information as to the time spent or coverage of any previous reading session. In some schools, students are required to track daily and cumulative reading times. Some business people try to dedicate a certain amount of time each day from their busy schedules to make some progress on their reading backlog. Other people find it necessary to time and track their reading sessions in order to avoid spending too much time reading and fail to meet some other meaningful or important task or obligation.

[00005] If the reader needs to track reading time, he or she typically uses a stand-alone stopwatch, clock, or general-purpose timer to record the time for each reading session. The reading times may be cumulated in a hand-written logbook or computer file. The time-tracking process becomes difficult to follow, especially if the stopwatch or timer is unavailable when the person decides to read. In situations where the parent is attempting to keep track of the student's reading times, the actual reading time and recorded time can become uncorrelated if the parent fails to notice when the student stops or takes a break. Parents are busy with their own activities and cannot watch the student every minute. If the student stops reading or shifts activity and the timer is still going, then the recorded time is not representative of the actual time spent reading. If the reading session is not immediately recorded, then certain reading times may be lost or recorded inaccurately.

[00006] A need exists to track individual and

cumulative reading times in a convenient, accurate, and efficient manner.

Summary of the Invention

[00007] In one embodiment, the present invention is a bookmark having an integrated electronic timer circuit comprising a substrate and a header integral with the substrate. The header has a display and control panel. An electronic timer circuit is housed within the header for receiving commands from the control panel and providing a timer signal to the display.

[00008] In another embodiment, the present invention is a marking device comprising a bookmark having an interior housing. An electronic timer is disposed within the interior housing of the bookmark for counting a count value. A control panel is disposed on the bookmark for controlling the electronic timer. A display is disposed on the bookmark and electrically coupled to the electronic timer for displaying the count value.

[00009] In yet another embodiment, the present invention is a method of monitoring time with a bookmark having an integrated electronic timer comprising the steps of setting a timer count value for the electronic timer which is integrated within a housing of the bookmark, counting the timer count value, and displaying the timer count value on the bookmark.

Brief Description of the Drawings

[00010] FIG. 1 illustrates a bookmark with integrated electronic timer;

FIG. 2 is a cross-sectional side view of the bookmark with interior housing for the electronic timer;

FIG. 3 illustrates further detail of the display and control panel on the header of the bookmark;

FIG. 4 is a block diagram of the electronic timer circuit;

FIG. 5 illustrates the substrate with transparent, optically magnifying viewing port;

FIG. 6 illustrates a side view of the bookmark with ribbon to mark the page of a book; and

FIG. 7 illustrates wireless communication link between the bookmark and transceiver.

Detailed Description of the Drawings

[00011] Referring to FIG. 1, a bookmark 12 is shown with an integrated electronic timer. Bookmark 12 includes a thin, flat body or substrate portion 14 and a thicker header portion 16. In one embodiment, substrate 14 measures 4 centimeters (cm) wide, 15 cm long, and 1 millimeter (mm) in thickness. Substrate 14 is made with a flexible plastic or other polymer material. In other embodiments, substrate 14 is made with paper, metal, glass, silicate, or material suitable for insertion between the pages of a book or other reading material. Substrate 14 is intended to lay flat between the pages of the book without damaging the pages or degrading the book's structure. Substrate 14 marks the page where the reader left off so he or she knows where to begin for the next reading session.

[00012] An important feature of bookmark 12 is the integration of the electronic timer within the bookmark. Substrate 14 functions to support header 16 and mark the reading place in the book. The electronic timer contained within header 16 provides useful temporal information related to the duration of present and

previous reading sessions. The combination of the bookmark feature and integrated timer feature works together to provide the reader with the ability to start and stop reading at any time and yet accurately and conveniently track individual, incremental, and cumulative reading times.

[00013] Header 16 containing the electronic timer can be made with similar materials as substrate 14. For the present discussion, header 16 measures 4 cm wide, 4 cm long, and 5-7 mm in thickness. Header 16 is typically made as a continuous molded unit integral with substrate 14. That is, in the manufacture of bookmark 12, substrate 14 and header 16 are formed together as a single molded unit. Alternatively, header 16 can be a separate structural member, which is rigidly or securely connected to substrate 14. When substrate 14 is placed between the pages of the book, header 16 remains visible extending beyond the edge of the book. The thicker portion of header 16 at the union with substrate 14 functions as an edge or stop to prevent substrate 14 from sliding any further down the page. The header/substrate union or junction is sufficiently rigid to prevent header 16 from bending or exhibiting loose or uncontrolled movement with respect to substrate 14.

[00014] As shown in the side view of FIG. 2, header 16 includes an interior cavity for housing electronic timer 18. The cavity is formed during the manufacturing process. Electronic timer 18 is inserted within the housing and electrically connected to display 20 and control panel buttons 22-28 on the face of header 16. Electronic timer 18 is enclosed or sealed within the housing of header 16. Electronic timer 18 keeps track of the duration of individual, incremental, and cumulative reading sessions.

[00015] The face of header 16 is shown in further detail in FIG. 3 and includes a light emitting diode (LED) or liquid crystal display (LCD) 20 and a control panel containing a plurality of control buttons or switches for controlling the electronic timer function. The timer can be programmed to count up and count down. The timer can be set to zero and accumulate time, or the timer can be set to a value and then count down. Start/stop button 22 starts the timer with a first press or activation of the button; button 22 also pauses or stops the timer with a second press. In other words, the timer starts and stops with alternating presses of button 22. Alternatively, a separate stop button 24 pauses or stops the timer. Reset button 26 resets the timer to zero. Set button 28 sets a value from which the timer counts down. Holding set button 28 increases the time. Releasing set button 28 sets the count down time. The timer may be set with separate hour and minute set buttons. The timer functions can be combined between buttons. For example, activating button 22 and button 28 simultaneously can be the reset function. One or more of the control buttons, e.g., buttons 30 can be located on the side of header 16.

[00016] Turning to FIG. 4, the block diagram of electronic timer circuit 18 is shown. Crystal oscillator 32 provides a stable, reliable clock signal with a known frequency. Electronic timer 34 counts the clock signals and can be programmed to count up or count down. Control buttons 22-28 are coupled to control interface logic 36 for controlling the function of timer 34. A timer count value is loaded into timer 34. Timer 34 then counts the timer count value in an increasing or decreasing manner at a rate, which is proportional to the clock signal. The count value within timer 34, in the form of a timer

signal, is sent via display interface logic 38 to display 20 to display the readout of the timer.

[00017] Accordingly, timer 34 can be reset to zero and allowed to count up with the clock signal when enabled by start button 22. The count time is regularly updated on display 20 to provide a continuous readout of the elapsed time since reset. Timer 34 pauses or stops when triggered by stop button 24. Alternatively, set button 28 loads a timer count value into timer 34. Timer 34 then counts down to zero. An alarm or buzzer 40 sounds when timer 34 reaches zero. Alarm 40 can be programmed to sound at regular intervals when timer 34 is counting up or counting down, e.g., every 10 minutes.

[00018] As an additional feature, electronic timer 18 includes random access memory 42 for storing previous timer counts. Memory 42 has the capacity to store a large number of previous individual timer counts, cumulative timer counts, and incremental timer counts, for each of several different readers. For example, memory 42 can be organized such that first, second, and third readers each have previous and cumulative timer counts stored in its memory bank. Additional control buttons on header 16 allow specific reader timer counts to be stored and recalled. The calendar day and time of day for each reading session can also be stored and tracked in memory 42.

[00019] Bookmark 12 uses an internal direct current (DC) power source 46 to provide operating power to all electronic components of timer circuit 18. Power source 46 may be a fixed battery cell located within header 16 or a distributed power layer disposed across the thin structure of substrate 14. Power source 46 could be made re-chargeable by using an AC/DC converter to a re-chargeable nickel metal hydride (NiMH) or lithium-ion

battery cells. The operating power can be drawn from solar energy or other light source. Bookmark 12 could be made disposable such that when the internal power source has dissipated, the unit is discarded.

[00020] Bookmark 12 has many features and uses. At the beginning of a reading session, the reader pushes reset button 26 to set timer 18 and display 20 to zero. The reader then presses start button 22 to start the timer count. Display 20 displays the present timer count in minutes and seconds. Display 20 further displays current calendar day and time of day and other useful information. Previous or cumulative timer counts can be recalled from memory 42. Bookmark 12 can be placed beside the reader in a convenient and readily viewable location, or the bookmark can be placed in the back of the book, beyond any page that the reader is likely to get to. Bookmark 12 includes clip 44 for clipping the bookmark to the back of the book cover.

[00021] If the reader decides to pause reading for a few moments, or stop for an extended period of time, then he or she presses stop button 24. A moveable slide 48 on the side of substrate 14 marks the last sentence read. Bookmark 12 is placed on the current page and the book is closed. When electronic timer 18 is not tracking reading time, display 20 may show the current time of day. The electronic timer 18 continues to hold the existing timer count. When the reader returns and continues reading, start button 22 is pressed again and the timer continues from the previous count. In the case of a young student reader, the parent, guardian, or teacher may elect to operate the control panel on header 16 to reset, start and stop the timer.

[00022] At the end of the reading session, the reader stores or records the reading time in memory 42. The

reader may record the reading time on paper, journal, logbook, or computer file. The individual and cumulative reading times for each reader are maintained in memory 42. The incremental reading times from reading session to session are also tracked. By viewing display 20, the reader determines, with a high degree of accuracy and confidence, the time of the present reading session. The reader can also call-up from memory 42 the cumulative reading time, or any previous reading time, together with calendar day and time of day associated with each reading session. Bookmark 12 is placed on the current page and the book is closed. When the reader begins a new reading session some number of hours or days later, the ending place in the book will be known and the previous reading times recalled from timer 34 or memory 42 and displayed on display 20.

[00023] The same memory function that allows electronic timer circuit 18 to track a number of readers can also be used to track reading times for a number of books under the same reader or different readers. Although bookmark 12 is generally kept in one book, the electronic timer circuit 18 can keep track of individual and cumulative reading times for other books. Memory 42 can also track the number of books read. The other books may use conventional bookmarks, but the individual and cumulative reading times will be kept on bookmark 12 for the benefit of the reader.

[00024] The parent or teacher of the student reader will find bookmark 12 useful in tracking the reading times of young student readers. The best way to learn to read well is to practice, i.e., to read as much material as possible, as often as possible. Parents and teachers set reading goals to ensure the student attains a reasonable amount of practice and developmental reading

time. Assume that the student is assigned to read 60-90 minutes per day. Since the student's attention span may not function as long as necessary to complete the assignment in one setting, bookmark 12 is used to track cumulative reading times over the day. The student may read for 15 minutes, stop for a snack, read for 20 minutes, stop to watch their favorite television program, read for another 25 minutes, stop to practice their musical instrument or work on other homework, and then return to finish their assigned reading time. Once the student is taught to start and stop the electronic timer 18 with their reading activity, then parents and teachers will have confidence in the completion of the assigned reading time and accuracy of the recorded time. Alarm 40 can be programmed to incrementally sound as the timer counts up, say every 10 minutes, to provide audible notice to the parent or teacher that the reader is focused and making progress on the assigned reading task.

[00025] If the student prefers to track time in reverse progression, the electronic timer 18 can easily be set to count down. Electronic timer 18 is set to the assigned reading time, e.g., 60 minutes, and the student starts and stops the timer as many times as necessary to complete the assigned reading task. Timer 18 will dutifully and accurately count down to zero. Parents can casually monitor the student's progress by strolling by and glancing at display 20. When timer 18 counts down to zero, alarm 40 sounds to let the reader know the timer has expired. The timer can be reset to another time period to continue reading, or the reading session can be terminated. Alarm 40 is selectable with a variety of tones, chimes, melodies, frequencies, voices, and audible expressions. Alarm 40 can be programmed to sound incremental, say every 10 minutes, to key the reader as

to the progression of time.

[00026] Business people may also prefer to use the count down mode. The businessperson may want to allocate say 30 minutes per day to make progress on their reading backlog. Bookmark 12 with the integrated electronic timer will provide the measurement means to exercise discipline in getting the necessary reading done. The person benefits from knowledge gained and general self-improvement.

[00027] Another feature of bookmark 12 is to provide automatic start and stop functions for timer 18. It is possible that the reader may forget or neglect to start and/or stop the timer each reading session. Bookmark 12 may contain a sensor 54 to start and stop electronic timer 18 in response to detecting an external condition. In one embodiment, the sensor detects the presence or absence of light to start and stop the timer. Light is detected when the book is opened and bookmark 12 is removed to begin reading. In this case, sensor 54 triggers timer 34 to begin counting. When bookmark 12 is returned to the page and the book is closed, the light is removed and sensor again triggers timer 34, this time to stop counting. If bookmark 12 is clipped to the back of the book cover with clip 44, then the light sensor would be continuously exposed to light to keep the timer running during the reading session. In another embodiment, the sensor uses capacitive sensing to detect human touch. When the reader handles bookmark 12 a first time at the beginning of the reading session to remove the bookmark from the page, sensor 54 triggers timer 34 to start counting. When the reader handles bookmark 12 a second time at the end of the reading session to return the bookmark to the page, sensor 54 causes timer 34 to stop counting. In yet another embodiment, the sensor is

sensitive to pressure. When the book is opened, sensor 54 detects the absence of the pressure from the pages and causes timer 34 to start counting. When the book is closed, sensor 54 detects the pressure of the pages and causes timer 34 to stop counting.

[00028] Bookmark 12 may include an integrated light source 56 to provide reading light in low-light settings. The light source can be a light bulb or LED. The light source receives operating power from power source 46. Alternatively, substrate 14 can be made with aluminate phosphors, photoluminescent materials, or other light absorbing materials, which store energy when light is present and emit a luminescence in low-light settings. Light source 56 gives the reader the ability to work with low-light conditions.

[00029] Still further improvements include building an optically magnifying viewing port into substrate 14. Many people can benefit from having a handy magnifying glass. As shown in FIG. 5, substrate 14 is made with transparent, optically magnifying plastic or glass viewing port 62. The reader holds bookmark 12 above the page in a horizontal position to optically enlarge the text for easy viewing through the transparent substrate.

[00030] Bookmark 12 may include one or more ribbons, strings, or other small, lightweight material to lie between pages, as shown in FIG. 6. Bookmark 12 could remain attached or clipped with clip 44 to the back of the book and ribbon 64 laid along the page to be marked. The bookmark function can also be accomplished with Velcro strap or elastic band.

[00031] Bookmark 12 may include wireless communication interface 68. The contents of memory 42 can be downloaded to transceiver 70. The wireless communication standard could be infrared or short distance radio

frequency (RF) transmission. The communication may be hard-wired with communication protocols such as Universal Serial Bus (USB). In one application, the contents of memory 42, as stored from the student's reading sessions, are downloaded into the teacher's receiving unit for review. The teacher could also upload the next assignment and reading times from transceiver 70 to communication interface 68.

[00032] A person skilled in the art will recognize that changes can be made in form and detail, and equivalents may be substituted for elements of the invention without departing from the scope and spirit of the invention. The present description is therefore considered in all respects to be illustrative and not restrictive, the scope of the invention being determined by the following claims and their equivalents as supported by the above disclosure and drawings.